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(54) **Plastic film particularly for pouch-like packages with improved tearability**

(57) The present invention relates to a plastic film particularly but not exclusively usable in the production of pouch-like packages with improved tearability. The

film comprises a linear polyethylene resin of average density that is extruded with a transverse stretch ratio of at least 2.

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Description

The present invention relates to a plastic film particularly but not exclusively for pouch-like packages with improved tearability.

It is known that in plastic pouch-like packages, particularly in hermetic packages, there is the problem of preparing them so that the user can easily tear them for opening, thus accessing their content.

A conventional method for solving the problem is to provide the pouches with a pre-cut, but this solution is adequate only in the case of soft and thin materials, while it is fully insufficient for thick and hard materials.

Despite the presence of the pre-cut, tearing does not proceed in a linear manner.

In other cases, an embossing is performed instead of the pre-cut, said embossing running longitudinally proximate to one or more sides of the pouch so as to score the package, allowing to start the tearing action.

However, this solution does not facilitate the propagation of the tear, which in this case, too, does not occur in a linear fashion.

In other embodiments, a laser scoring is provided which is adapted to weaken the material and allow opening by tearing.

The principal aim of the present invention is to provide a plastic film for pouch-like packages that is intrinsically, in its very structure, preset for tearing with linear propagation.

Within the scope of this aim, a consequent primary object is to provide a plastic film that allows to produce pouches that can be torn along longitudinal and transverse lines and therefore in perpendicular directions.

Another important object is to provide pouch-like packages that do not need to be subjected to specific operations to prepare them for tearing.

Another important object is to provide a plastic film that maintains optimum heat-sealing and flexibility characteristics.

Another important object is to provide a plastic film that can be produced with conventional equipment and facilities.

This aim, these objects, and others which will become apparent hereinafter are achieved by a plastic film, particularly for pouch-like packages with improved tearability, characterized in that it comprises a resin made of linear polyethylene of average density which is extruded with a transverse stretch ratio of at least two.

Advantageously, said linear polyethylene resin is of the butene copolymer type.

Conveniently, said density is comprised, by way of example, between 0.93 and 0.935.

Further characteristics and advantages of the invention will become apparent from the detailed description of an embodiment thereof, given hereinafter by way of non-limitative example.

According to the invention, the plastic film particularly for pouch-like packages is constituted, for at least

90%, by a polyethylene resin of the group of linear polyethylenes, of the butene copolymer type, i.e., with an average density on the order of 0.93-0.935.

Advantageously, the composition comprises, for the remaining percentage, another resin of the high-density type, i.e., with a density on the order of 0.94-0.945.

The film is obtained by extrusion, by using per se known extrusion heads normally used in this field, providing a transverse stretch ratio at least equal to 2.

The stretch ratio is conveniently the ratio between the width of the resulting film and the circumference of the extrusion slit.

The resulting film is orientated both longitudinally and transversely, producing corresponding preferential tearability directions with a tearing action that proceeds in a linear manner, without changing direction, if it is produced in either of the two directions.

Of course, according to the above mentioned stretch ratio, if it is not possible to produce considerable film widths, it is necessary to reduce the dimensions of the extrusion head, particularly the circumference of the extrusion slit, in order to achieve a ratio of at least 2.

For an equal head diameter, instead, it is necessary to increase the width of the film to achieve the minimum necessary stretch ratio.

The orientation produced by the stretch ratio cannot however be too high, since one of its secondary effects is an increase in mechanical strength and in the heat-sealing temperature of the film, and this might be a problem for high-speed packaging machines.

The convenience of providing, in the packages, a small initial guiding slit on the edge, to further facilitate opening for the user, should also be noted.

In practice, it has been observed that the above described film has achieved the intended aim and objects.

Its use to produce easy-opening pouches/packages in fact allows to permanently solve the problem of package opening.

The structural features of the film cause it to be intrinsically preset for tearing along two perpendicular preferential directions without having to perform operations such as pre-cutting, laser scoring, embossing, etcetera.

It is simply preferable to provide a small edge slit in the pouch.

The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the inventive concept.

All the details may furthermore be replaced with other technically equivalent elements.

In practice, the dimensions may be any according to the requirements.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of exam-

ple by such reference signs.

Claims

1. Plastic film, characterized in that it comprises a linear polyethylene resin of average density that is extruded with a transverse stretch ratio of at least 2. 5
2. Film according to claim 1, characterized in that said linear polyethylene resin is of the butene copolymer type. 10
3. Film according to one or more of the preceding claims, characterized in that said average density is on the order of 0.93-0.935. 15
4. Film according to one or more of the preceding claims, characterized in that, in the composition, said linear polyethylene resin is present for approximately 90%. 20
5. Film according to one or more of the preceding claims, characterized in that it is orientated both longitudinally and transversely. 25
6. Film according to one or more of the preceding claims, characterized in that it comprises, for the remaining percentage, at least one other resin with a density on the order of 0.94-0.945. 30
7. Pouch/package produced with a plastic film according to one or more of the preceding claims, characterized in that it has at least one slit on the edge to guide tearing. 35

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TITLE: Polyethylene@ film for pouch-like packages is orientated both longitudinally and transversely so that it can be torn along two perpendicular directions in linear manner

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ABSTRACTED-PUB-NO: EP 723856 A2**BASIC-ABSTRACT:**

A plastic film comprises a linear polyethylene resin of average density that is extruded with a transverse stretch ratio of at least 2.

Also claimed is a pouch/package produced with the above film, which has at least one slit on the edge to guide tearing.

Pref. the linear polyethylene resin is of the butene copolymer type with a density of 0.93-0.935. The plastic film comprises approx. 90% of linear polyethylene resin, with the remaining percentage comprising at least one other resin with a density of 0.94-0.945. The film is oriented both longitudinally and transversely.

USE - Used as a plastic film for pouch-like packages (claimed).

ADVANTAGE - The film is intrinsically preset for tearing in a linear fashion without having to perform operations such as pre-cutting, laser scoring, embossing etc. The plastic film maintains heat sealing and flexibility characteristics, and can be produced with conventional equipment and facilities.

TITLE-TERMS: POLYETHYLENE@ FILM POUCH PACKAGE ORIENT
LONGITUDE TRANSVERSE SO CAN TORN TWO
PERPENDICULAR DIRECTION LINEAR MANNER

DERWENT-CLASS: A17 A92

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